

REMARKS/ARGUMENTS

This is a Response to the Office Action mailed June 7, 2007, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire September 7, 2007. Attached is the requisite fee for a one-month extension of time, to October 7, 2007. Claims 17-25 are currently amended. No new matter has been added to the application. No fee for additional claims is due by way of this Amendment. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Upon entry of the amendments herewith, claims 17-27, 29, and 31 remain pending.

1. Rejections Under 35 U.S.C. § 103(a)

In the Office Action, at paragraph 3, claims 17-25 and 31 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Suzuki et al.* (U.S. Patent 6,033,752), hereinafter *Suzuki*, in view of *Takahashi et al.* (U.S. Patent 4,405,706), hereinafter *Takahashi*, and JP 54-133134.

At paragraph 4, claims 17-27 and 31 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Suzuki*, in view of *Takahashi* and JP 54-133134, further in view of *Takaoka et al.* (U.S. Patent 4,682,321), hereinafter *Takaoka*, or *Mizushima et al.* (JP 2003-054135), hereinafter *Mizushima*, combined with *Nee* (U.S. Publication No. 2004/0018334), hereinafter *Nee*, and *Nishida et al.* (U.S. Patent No. 5,871,881), hereinafter *Nishida*.

At paragraph 5, claims 17-27, 29 and 31 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Suzuki*, in view of *Takahashi* and JP 54-133134, and further in view of *Takaoka* or *Mizushima*, combined with *Nee* and *Nishida*, combined with *Shuy et al.* (U.S. Publication No. 2001/0021160), hereinafter *Shuy*.

It is well-established at law that, for a proper rejection of a claim under 35 U.S.C. § 103 as being obvious based upon a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly or explicitly, all elements and/or features of the claim at issue. See, e.g., *In Re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

a. Independent Claim 17

Independent claim 17, as amended, is allowable for at least the reason that the proposed combination of art identified above does not disclose, teach, or suggest at least the feature of “a recording layer farthest from the light transmission layer among the plurality of recording layers containing at least one element M selected from a group consisting of Ni, Cu, Si, Ti, Ge, Zr, Nb, Mo, In, Sn, W, Pb, Bi, Zn and La, at least one element selected from a group consisting of S, O, C and N as a primary component, and at least one metal different from the element M and selected from a group consisting of Mg, Al and Ti, wherein the at least one recording layers contains the elements selected from a group consisting of S, O, C and N and the at least one metal different from the element M and selected from the group consisting of Mg, Al and Ti in a form of a compound thereof, and wherein the at least one recording layers is constituted so that information is recorded therein upon being irradiated with the laser beam” as recited in claim 17.

Suzuki does not disclose, teach, or suggest that the recording layer farthest from the light transmission layer contains:

an element M (selected from a group consisting of Ni, Cu, Si, Ti, Ge, Zr, Nb, Mo, In, Sn, W, Pb, Bi, Zn and La),
an element selected from S, O, C and N, and
at least one metal different from the element M (selected from Mg, Al and Ti),
wherein the element selected from S, O, C and N, and the at least one metal different from the element M is in the form of a compound.

Suzuki discloses that the “first recording layer 3 should have a high reflectance, a metal layer with In as a main constituent is particularly suitable. In order to achieve an even higher reflectance, either pure In, or an alloy with a high concentration of In is preferable, while on the other hand in order to improve the recording sensitivity an alloy with a reduced In concentration is preferable. Examples of suitable metals which can be combined with In to create alloys include Au, Ag, Al, Be, Cu, Fe, Ge, Pb, Si, Sn, Ta, V and Zn. Of these metals, Ge and Si are particularly suitable due to the jitter improvement thus realized. Moreover, in order to

improve the recording sensitivity even further, metal sulfides such as CrS, Cr₂S, Cr₂S₃, MoS₂, MnS, FeS, FeS₂, CoS, Co₂S₃, NiS, Ni₂S, PdS, Cu₂S, Ag₂S, ZnS, In₂S₃, In₂S₃, GeS, GeS₂, SnS, SnS₂, PbS, As₂S₃, Sb₂S₃ and Bi₂S₃, metal fluorides such as MgF₂, CaF₂ and RhF₃, metal oxides such as MoO, InO, In₂O, In₂O₃, GeO, PbO, SiO and SiO₂, carbides such as SiC, TaC and TiC, or elemental carbon C can be added to the In or In alloy, either separately or in mixtures of two or more compounds thereof. Particularly suitable compounds are GeS, MnS, ZnS and SiO₂” (column 6, lines 17-37). *Suzuki* further discloses that “the second recording layer 4 is constructed entirely of one of the aforementioned elements, As, Se, Sb, Te and Bi are preferable as they can be easily formed into thin films using sputtering techniques and are relatively inexpensive, although Po can also be used. Examples of different elements and compounds which can be incorporated into a second recording layer 4 constructed from an alloy comprising one or more of the aforementioned elements include Ag, B, C, Cu, Ge, In, Si and ZnS. Furthermore, alloys such as In-Sb-Te, Ag-In-Sb-Te, Au-In-Sb-Te, Ge-Sb-Te, Pd-Ge-Sb-Te and Te-O-Pd which are in current use in the recording phase of phase change optical recording media can also be employed as the aforementioned alloy” (column 7, lines 5-18). Thus, *Suzuki* fails to disclose, teach or suggest the above-recited features of claim 17.

Other portions of *Suzuki* disclose use of compounds, but these compounds pertain to the bedding layer, the intermediate layer, and the dielectric layer. Thus, these compounds are not in the recording layers, and accordingly, do not disclose, teach or suggest the above-recited features of claim 17.

Takahashi also fails to disclose, teach or suggest at least the above-recited features of claim 17. *Takahashi* discloses that “metals used for the heat mode recording layer in this invention include Mg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Re, Fe, Co, Ni, Ru, Rh, Pd, Ir, Pt, Cu, Ag, Au, Zn, Cd, Al, Ga, In, Si, Ge, Sn, As, Sb, Bi, Se, and Te, which are used individually or in combination. Preferable among them are Mg, Zn, Al, In, Sn, Bi, and Te because of their low melting poing [point]” (column 3, lines 52-58). Thus, *Takahashi* fails to disclose, teach, or suggest the above-recited features of claim 17.

JP 54-133134 also fails to disclose, teach or suggest at least the above features of claim 17. JP 54-133134 discloses that the recording layer contains a metal oxide and an

oxidising agent. At most, JP 54-133134 discloses MgO in the dielectric substance. Thus, JP 54-133134 fails to disclose, teach, or suggest the above-recited features of claim 17.

When *Suzuki*, *Takahashi*, and JP 54-133134 are considered in combination, there is no disclosure of the features which may be combined to arrive at the above-recited features of claim 17. That is, there is no disclosure in *Takahashi* or JP 54-133134 that would lead one skilled in the art to modify *Suzuki* to arrive at a recording layer farthest from the light transmission layer that contains:

- an element M (selected from a group consisting of Ni, Cu, Si, Ti, Ge, Zr, Nb, Mo, In, Sn, W, Pb, Bi, Zn and La),
- an element selected from S, O, C and N, and
- at least one metal different from the element M (selected from Mg, Al and Ti),

wherein the element selected from S, O, C and N, and the at least one metal different from the element M is in the form of a compound.

Accordingly, the proposed combination of *Suzuki* in view of *Takahashi* and JP 54-133134 does not disclose at least the above-recited features of claim 17. Therefore, a *prima facie* case establishing an obviousness rejection by *Suzuki* in view of *Takahashi* and JP 54-133134 has not been made. Thus, claim 17 is not obvious under proposed combination of *Suzuki* in view of *Takahashi* and JP 54-133134, and the rejection should be withdrawn.

Takaoka also fails to disclose, teach or suggest at least the above features of claim 17. *Takaoka* discloses that “examples of materials constituting thin films of a recording layer and having smaller optical extinction coefficients are Ge, Te, Bi, Tl, and alloys containing these elements as major constituents, and examples of those having larger extinction coefficients are Te, Bi, Sb, Ag, In and alloys containing these elements as major constituents. At least two thin films of these materials can be combined to form a multilayer body. ... When the recording layer consists of two thin films, the thin films preferably comprise Se-Bi, Te-Bi, Te-Ge and Ge-Bi” (column 2, lines 49-63). Thus, *Takaoka* fails to disclose, teach, or suggest the above-recited features of claim 17.

Mizushima also fails to disclose, teach or suggest at least the above features of claim 17. The *Mizushima* Abstract fails to disclose any of the above-recited features of claim 17.

Nee also fails to disclose, teach or suggest at least the above features of claim 17. *Nee* discloses that “optically re-recordable material further comprises a phase changeable material selected from the group consisting of Ge--Sb--Te, As--In--Sb--Te, Cr--Ge--Sb--Te, As--Te--Ge, Te--Ge--Sn, Te--Ge--Sn--O, Te--Se, Sn--Te--Se, Te--Ge--Sn--Au, Ge--Sb--Te, Sb--Te--Se, In--Se--Tl, In--Sb, In--Sb--Se, In--Se--Tl--Co, and Si--Te--Sn” (claim 7, see also paragraph 51). *Nee* also discloses use of silver-based materials. Accordingly, *Nee* fails to disclose, teach, or suggest the above-recited features of claim 17.

Nishida also fails to disclose, teach or suggest at least the above features of claim 17. *Nishida* discloses the fourth embodiment with a “phase change type recording layer and a reflective layer, four-layer structure consisting of a (ZnS)₈₀ (SiO₂)₂₀ thin film 130 nm thick, a Ge₂₁Sb₂₅Te₅₄ thin film 25 nm thick, a (ZnS)₈₀ (SiO₂)₂₀ thin film 25 nm thick and a Al₉₇Ti₃ thin film 70 nm thick formed sequentially on the substrate is formed.” (column 15, lines 12-17). Further, *Nishida* discloses that “for composition of a recording film in a phase change type recording layer, if a group of Ge-Sb-Te other than the above-described composite ratio, each group of Ge-Sb-Te-M (M: metallic element), Ge-Te-Se, Ge-Te-Sb-Se, In-Se, In-Se-Tl, In-Se-M (M: metallic element), In-Sb-Te, In-Sb-Se, Ga-Sb, Sn-Sb-Se and Sn-Sb-Se-Te are used, the similar result can be also obtained. If a group of In-Sb utilizing change of a phase between a crystallization and another crystallization state is used, the similar result can be also obtained” (column 16, lines 50-59). Thus, *Nishida* fails to disclose, teach, or suggest the above-recited features of claim 17.

When *Suzuki*, *Takahashi*, and JP 54-133134, in further view of *Takaoka* or *Mizushima*, combined with *Nee* and *Nishida*, are considered in combination, there is no disclosure of the features which may be combined to arrive at the above-recited features of claim 17. That is, there is no disclosure in *Takaoka*, *Mizushima*, *Nee*, or *Nishida* that would lead one skilled in the art to modify *Suzuki*, *Takahashi*, and JP 54-133134 to arrive at a recording layer farthest from the light transmission layer that contains:

an element M (selected from a group consisting of Ni, Cu, Si, Ti, Ge, Zr, Nb, Mo, In, Sn, W, Pb, Bi, Zn and La),
an element selected from S, O, C and N, and
at least one metal different from the element M (selected from Mg, Al and Ti),

wherein the element selected from S, O, C and N, and the at least one metal different from the element M is in the form of a compound.

Accordingly, the proposed combination of *Suzuki* in view of *Takahashi* and JP 54-133134, in further view of *Takaoka* or *Mizushima*, combined with *Nee* and *Nishida*, does not disclose at least the above-recited features of claim 17. Therefore, a *prima facie* case establishing an obviousness rejection by the above combination of references has not been made. Thus, claim 17 is not obvious under proposed combination above, and the rejection should be withdrawn.

Shuy also fails to disclose, teach or suggest at least the above features of claim 17. *Shuy* discloses that "the transparent layer 30 and the reflecting layer 40 are selected such that, when heated by a light beam, the transparent layer 30 and the reflecting layer 40 will react to form a semi-transparent reflective area 35 (as shown in FIGS. 2A and 2B). The chemical composition of the semi-transparent reflective area is an alloy and/or compound of the transparent layer 30 and the reflecting layer 40" (paragraph 0028). However, *Shuy* does not disclose either of the transparent layer 30 or the reflecting layer 40 with the above-described features of claim 17. Thus, *Shuy* fails to disclose, teach, or suggest the above-recited features of claim 17.

When *Suzuki*, *Takahashi*, and JP 54-133134, in further view of *Takaoka* or *Mizushima*, combined with *Nee*, *Nishida*, and *Shuy* are considered in combination, there is no disclosure of the features which may be combined to arrive at the above-recited features of claim 17. That is, there is no disclosure in *Takaoka*, *Mizushima*, *Nee*, *Nishida*, or *Shuy* that would lead one skilled in the art to modify *Suzuki*, *Takahashi*, and JP 54-133134 to arrive at a recording layer farthest from the light transmission layer that contains:

an element M (selected from a group consisting of Ni, Cu, Si, Ti, Ge, Zr, Nb, Mo, In, Sn, W, Pb, Bi, Zn and La),
an element selected from S, O, C and N, and
at least one metal different from the element M (selected from Mg, Al and Ti),
wherein the element selected from S, O, C and N, and the at least one metal different from the element M is in the form of a compound.

Accordingly, the proposed combination of *Suzuki* in view of *Takahashi* and JP 54-133134, in further view of *Takaoka* or *Mizushima*, combined with *Nee*, *Nishida*, and *Shuy*, does not disclose at least the above-recited features of claim 17. Therefore, a *prima facie* case establishing an obviousness rejection by the above combination of references has not been made. Thus, claim 17 is not obvious under proposed combination above, and the rejection should be withdrawn.

b. Dependent Claims 18-27, 29, and 31

Because independent claim 17 is allowable over the cited art of record, dependent claims 18-27, 29, and 31 (which depend from independent claim 17) are allowable as a matter of law for at least the reason that the dependent claims 18-27, 29, and 31 contain all features/elements of independent claim 17. See, e.g., *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Accordingly, the rejection to these claims should be withdrawn.

2. Obviousness-Type Double Patenting Rejections

The Office Action has rejected claims 17-27, 29 and 31 under the judicially created doctrine of obviousness-type double patenting as being obvious over claims 1-19 of copending Application No. 10/818,324. In view of the amendments herein, Applicants respectfully request reconsideration and withdrawal of the obviousness-type double patenting rejection.

3. Conclusion

In light of the above amendments and remarks, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that all pending claims 17-27, 29 and 31 are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. The Examiner is encouraged to contact Mr. Armentrout by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner

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notes any informalities in the claims, he is further encouraged to contact Mr. Armentrout by telephone to expediently correct such informalities.

Respectfully submitted,
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